

INDEPENDENT TECHNICAL PANEL LANDSCAPE WATER USE EFFICIENCY RECOMMENDATIONS REPORT

SECTION 1: INTRODUCTION

This report is submitted pursuant to California Water Code §10631.7 which directs the Department of Water Resources (DWR) to convene an Independent Technical Panel (ITP) to provide information and recommendations to DWR and the Legislature on new demand management measures, technologies, and approaches. This report outlines the ITP's recommendations for California landscape water use efficiency and reduction measures, and provides a framework for future water use efficiency.

Background

In February 2014, the ITP submitted its first report to the Legislature on urban water management plan (UWMP) demand management measures. The document was prepared to allow the Legislature to consider ITP recommendations and potentially amend the Urban Water Management Planning Act (UWMPA) during the 2014 legislative session. The ITP's recommendations were incorporated into several legislative actions that resulted in amendments to the UWMPA.

In March 2014, following completion of their first report, the ITP reconvened to discuss where to next focus their efforts. Several topics were considered¹ and discussed at subsequent meetings in May and August 2014. Through this process the ITP decided it would next address urban landscape water use. The ITP convened in November 2014 and began to analyze challenges and solutions related to urban landscape water use, ultimately generating the recommendations contained in this report.

¹ A topic table prepared by the ITP is available for download from: [insert working link and also include in appendix](#)

SECTION 2: INDEPENDENT TECHNICAL PANEL ON DEMAND MANAGEMENT MEASURES: ORGANIZATION AND PROCESS

ITP Purpose and Scope

The California Legislature passed Assembly Bill (AB) No. 1420 (2007) which amended the eligibility requirements for State water management grants or loans to be conditioned on urban water suppliers implementing specified water demand management measures². AB 1420 also directed DWR to convene an independent technical panel by 2009 to provide information and recommendations to DWR and the Legislature on new demand management measures, technologies, and approaches. The ITP is directed to report to the Legislature every five years, starting in 2010. DWR is directed to review the ITP's report and include in the final report to the Legislature, the Department's recommendations and comments regarding the panel process and the panel's recommendations.

Due to insufficient resources, DWR was unable to convene the ITP in accordance with the schedule specified in AB 1420. In January 2013, DWR, in consultation with the California Urban Water Conservation Council (CUWCC), solicited nominations and subsequently selected members for the ITP. The ITP held its first meeting on May 2, 2013. Since inception, the ITP has held 29 meetings between May 2013 and April 2016.

ITP Membership and Meeting Process

AB 1420 specified that the ITP should have no more than seven members, with at least one but no more than two representatives from the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. In accordance with AB 1420, members of the ITP were selected by a joint committee of DWR and CUWCC representatives. Criteria for selection included prospective members' technical knowledge of demand management measures, their geographic representation, and the overall representative balance of experts in each of the designated categories. The ITP members are listed below:

Name	Representation	Organization
David W. Fujino, Ph.D.	Academia	UC Davis, California, Center for Urban Horticulture
Edward R. Osann	Environmental	Natural Resources Defense Council
Jeff Stephenson	Wholesaler	San Diego County Water Authority
Lisa Maddaus, P.E.	At large	Maddaus Water Management, Inc.
Penny M. Falcon, P.E.	Retailer	City of Los Angeles Department of Water and Power
Peter Estournes	Business	Gardenworks, Inc.
William E. Granger	Retailer	City of Sacramento Department of Utilities

² California Water Code §10631.5, §10631.7, and §10644.

As a legislatively-created State body, ITP meetings were conducted in accordance with the Bagley-Keene Open Meeting Act of 2004 (Bagley-Keene). Meetings were also conducted consistent with the ITP Charter³ developed by DWR and the ITP. The Charter describes roles and responsibilities, decision-making methods, communication protocols, and similar for the ITP. Meeting notices and materials were posted on DWR's web site⁴ at least 10 calendar days in advance of each meeting. Every meeting or webinar was memorialized in written format and summaries were posted on the web site.

The ITP made decisions on administrative matters and on technical recommendations in accordance with the decision making methods described in the Charter. Each of the landscape water use recommendations in this report was proposed, deliberated, and decided upon using the "consensus with accountability" method described in the Charter.

Roles and Responsibilities

The ITP is, true to its name, an independent panel conducting its deliberations and decision making. ITP activities on the landscape water use topic were supported by DWR, who provided technical and administrative staff support. Staff from the California State University Sacramento, Center for Collaborative Policy provided neutral third party meeting facilitation and ensured adherence to the Bagley-Keene Act and Charter requirements.

Public Participation

All of the ITP meetings and webinars were open to the public in accordance with Bagley-Keene. The facilitator solicited public comments during the open discussion periods of each agenda item and prior to ITP decisions. The draft report was posted for public review and comment for one month. All written comments received during the public comment period (and at all times during the ITP process) were considered by the ITP as they created and deliberated on their recommendations regarding landscape water use.

Landscape Water Use Discussion Process

Between November 2014 and April 2016, the ITP met 13 times (including 2-day in-person meetings and conference call/web-based virtual meetings) to discuss and complete their recommendations and this report. As referenced in the above background section, the ITP planned for its 2014-2016 work from March 2014 to August 2014. The ITP agreed to conduct meetings as two-day events taking place approximately every other month, alternating locations between northern and southern California. In November 2014, the ITP began receiving presentations from myriad landscape industry organizations and advocacy groups on water use efficiency options. This allowed the ITP to engage in an open dialogue with professionals and define key issues related to the topic of urban landscape water use. The ITP

³ The ITP Charter is located on DWR's ITP webpage: <http://www.water.ca.gov/wateruseefficiency/sb7/committees/urban/u2/>

⁴ <http://www.water.ca.gov/wateruseefficiency/>

continued receiving presentations and considering issues related to landscape water use for multiple meetings through April 2015, after which the ITP developed a seven-point framework to guide the creation of their final report recommendations. These seven framing topics were (in no hierarchical order):

1. Overarching Goals for State Water Use
2. Model Water Efficiency Landscape Ordinance (MWELo), Codes and Standards
3. Workforce Education and Certification
4. Plant Labeling and Identification of High Water Use Plant Material
5. Incentives
6. Public Perceptions and Social Norms
7. Research Needs and Support

EXECUTIVE ORDER B-29-15

In April 2015, after a historically low snow pack, and fourth year of drought conditions, Governor Jerry Brown signed Executive Order B-29-15 (EO) requiring the first ever statewide mandatory water conservation measures. Relevant to the ITP, the EO required DWR to:

- Partner with local agencies to replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes in underserved communities.
- Revise MWELo in an expedited time frame to increase water use efficiency for new landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered by turf.
- Require local agencies to report on the implementation and enforcement of local water use efficiency ordinances.

While the ITP had already identified MWELo as a topic to address under their seven-point framework, the EO significantly expedited this particular effort. The ITP worked from late-April to mid-June 2015 in a focused effort with DWR to provide recommendations for the MWELo revisions required in the EO.⁵ The revised MWELo was approved by the California Water Commission in July 2015 and became effective in the California Code of Regulations on September 18, 2015. Local agencies were given until December 1, 2015 to adopt either the Revised MWELo or a local ordinance at least as effective. All agencies were required to comply with Revised MWELo reporting requirements by December 31, 2015. The adoption of regional ordinances was to be completed by February 2016 or MWELo became effective by default.

Below is a timeline of the ITP's work between April 2015 and March 2016, including the panel's participation in the revision of MWELo:

- **April 2015:** ITP members volunteered to draft MWELo revision recommendations to be discussed and modified during a webinar in May 2015. Their recommendations centered on turf limits, permits and fees, greywater capture and use, landscape meters, rainwater

⁵ Need to insert here a link or appendix reference to the MWELo recommendations developed by the ITP

retention, reporting requirements, penalties for noncompliance, and scope and size thresholds for the ordinance.

- **May 2015:** The ITP met twice via webinar to discuss and improve their draft recommendations to revise MWEL0. They also agreed to recommendations related to turf prohibition, irrigation efficiency requirements as well as size and scope thresholds.
- **June 2015:** The ITP finalized their recommendations to DWR for revisions to MWEL0. They also returned to discussion of the seven-point framework topics. At this meeting, they received presentations from industry experts on codes and standards related to landscape water use efficiency, and on workforce challenges and opportunities. Authoring teams comprised of up to three ITP members volunteered to prepare text related to strengthening education requirements, removing barriers to landscape professionals, encouraging state agencies to hire licensed landscape professionals, and developing an MWEL0 EZ form to improve compliance.
- **August 2015:** The ITP reviewed their Vision Statement for the final report as well as an outline for this document. Individual authors and authoring teams were created to prepare draft sections and recommendations included herein that reflect the collective sentiments of the ITP and past ITP discussions.
- **September 2015:** Authoring teams prepared draft report recommendations for review during two four-hour webinars in October 2015.
- **October 2015:** The ITP met via webinar to review draft sections of the Final Report on Landscape Water Use, and to develop recommendations for next steps to prepare the ITP Final Report content. Authoring teams continued to work on recommendation text throughout the month.
- **November 2015:** The ITP reviewed updated and/or newly available draft recommendation text. Authoring teams considered feedback and continued to revise recommendations throughout the month. At this meeting, a Metrics Work Group was formed to address the numerous statistical references embedded throughout the report recommendations.
- **December 2015 and January 2016:** These meetings were also dedicated to the review and discussion of updated and newly available draft recommendation text. Authoring teams considered feedback and continued to revise recommendations over the course of the next months.
- **February 2016:** The ITP met via webinar to review draft sections of the Final Report on Landscape Water Use, and to take formal action on determining which draft sections to include in the Public Draft Report. The Public Draft Report was then made available for a 30-day comment period.
- **March 2016:** The ITP hosted a full-day public meeting in order to receive and consider comments on the Public Draft Report. All contents in the body text of the document represented unanimous or majority approval of said text by the ITP, as per its decision rule memorialized in the ITP Charter. **Insert webinar info**

- **April 2016:** Final meeting of the ITP, where Report Recommendations and supporting text were finalized and approved for submission to the Legislature.

SECTION 3-1: ITP VISION STATEMENT: ACHIEVING SUSTAINABLE URBAN LANDSCAPES THROUGHOUT CALIFORNIA

*INSERT FINAL VISION STATEMENT

SECTION 3-2: THE WATERSHED APPROACH TO CALIFORNIA LANDSCAPES

Approximately half of California's potable water supply is used as supplemental irrigation on our urban landscapes given most plants commonly used often do not adapt to our natural climate. Recent and severe droughts are requiring that California accelerate toward more sustainable landscaping and water efficient landscape practices. A key strategy in support of this statewide transformation is taking a watershed based approach to design and recovery for the benefit of long term future of California landscapes and our water supply availability.

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As defined by the California Urban Water Conservation Council (CUWCC), the **watershed approach** is an integrated, holistic, and watershed-based approach to site-specific landscape design, construction, and maintenance that transcends water-use efficiency to address the related benefits of rainwater capture and use; reduction of storm water runoff, pollution, greenhouse gases, and green waste; energy and cost savings; and human and wildlife habitat improvements⁶.

The optimal design, installation, and management of California's landscapes is critical to protecting our limited natural resources, capitalizing on associated economic benefits, and complying with existing and pending regulation. Watershed management must integrate and coordinate all the activities that affect a watershed's natural resources, water quality and water supply. The Department of Water Resources (DWR) has also adopted the watershed approach in their most recent update to the Model Water Efficient Landscape Ordinance (MWELO)⁷:

490 (c): Landscapes that are planned, designed, installed, managed and maintained with the watershed based approach can improve California's environmental conditions and provide benefits and realize sustainability goals. Such landscapes will make the urban environment resilient in the face of climatic extremes.

The ITP strongly supports the watershed approach to California landscapes, and highly emphasizes this innovative approach be embedded in statewide and local policies, procedures and methodology. As a result, the watershed approach is the focal point of all the ITP's recommendations aimed at improving our water management of urban landscapes.

⁶https://www.cuwcc.org/Portals/0/Document%20Library/Resources/Sustainable%20Landscapes/Watershed%20Approach_Briefing.pdf?timestamp=1430853508685

⁷http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/E.OB_29_15_MWELO_Update_07-09-%2015_Draft_Final.pdf

SECTION 3-3: ACTIONS TO SUPPORT THE WATERSHED APPROACH

The ITP's report recommendations are consistent with the watershed approach, and essential strategy to achieving sustainable urban landscapes throughout California. The ITP's goal is to promote education, incentives and mandates that maximize the watershed approach with on-site water retention and use, including alternative sources, design with climate appropriate plants and manage the soil such that supplemental irrigation is minimal or ideally eliminated. This strategy is tied to the following key objectives as prioritized by the ITP:

- Manage water as effectively as possible on existing and new landscapes, which includes new irrigation equipment standards, water budgeting and requiring permitted systems.
- Retrofit existing landscapes through financial incentives to replace high water consuming ornamental plants, including turf grass.
- Design and construct new landscapes as efficiently as possible leveraging implementation and enforcement around the Model Water Efficient Landscape Ordinance (MWELO), or local equivalent policy.
- Transform the workforce to meet the goal of more watershed based landscapes designed, installed and managed by trained and certified professionals with continuing education requirements.
- Change social and cultural norms through education to gain greater acceptance of the minimal supplemental irrigation needed by many native and climate appropriate ornamental plants and through irrigation management education.
- Accelerate the change with more visibility in state and publicly owned buildings that are highly water efficient with demonstration landscapes.
- Include funding for research to quantify efficiency and value of programs, equipment, technologies, techniques, regulations, etc.

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SECTION 3-4: ITP RECOMMENDATIONS ON LANDSCAPE WATER USE REDUCTION AND EFFICIENCY

Recommendations Overview

The ITP's final recommendations on landscape water use efficiency measures address a variety of issues determined by the Panel members to be of critical and timely importance. The recommendations acknowledge the importance of functional and attractive outdoor spaces, while aiming to achieve cumulative water savings in support of the Panel's vision of a California that uses one-half the potable water on outdoor landscapes in 2035 that it uses today.

While each recommendation can be reviewed as an independent proposal, it is essential to realize that taken together, these recommendations have the potential to achieve significant water savings for the State. Many of the recommendations are synergistic: when combined they may produce a total effective water savings that is greater than the sum of the individual contributions.

The report is organized into **seven** sections, generally mirroring the original seven-point framework the ITP developed in. Within these **seven** sections are a total of **XX** recommendations. The recommendations are presented such that each contains: a background statement, a general recommended action, and a detailed proposed action. Each proposed action can be categorized into one of the following four types:

- **Mandate:** A recommendation to the Legislature for a mandatory order or requirement to be made under statute, regulation, or by a public agency.
- **Standard:** A recommended new standard, or critical modification or update to an existing form, procedure, protocol, equipment performance measure, etc. to be made and considered by an authority or by general consent as a basis of comparison. Standards may or may not require legislative **change**.
- **Education:** A recommendation for the continued education of industry professionals such that particular knowledge essential to achieving landscape water use efficiency (e.g. latest developments, new technologies, regulatory changes, etc.) is imparted in an effective and timely manner. Educational recommendations may or may not have associated legislative **changes**.
- **Incentive:** A recommendation to provide an incentive in order to encourage and stimulate positive action relating to reduced landscape water use. Incentives are most often financial in nature, and may or may not have associated legislative **changes**.

The following chart lists the **XX** recommendations and identifies the major categories into which they fall (Table 1).

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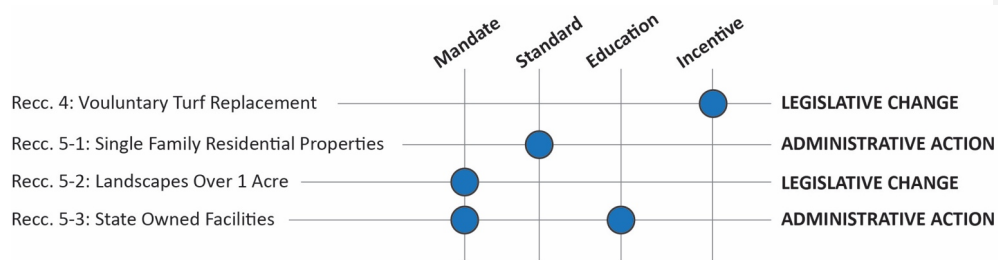


Table 1: Recommendation categories. **PLACEHOLDER DOT CHART ONLY**

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